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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,817	12/20/2000	Kentaro Miyano	P20402	4059

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EXAMINER	
LEE, JOHN J	

ART UNIT	PAPER NUMBER
2684	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/739,817	MIYANO ET AL.	
	Examiner	Art Unit	
	JOHN J. LEE	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *40 and 41* is/are allowed.

6)☒ Claim(s) *36-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's arguments with respect to claims 36 – 41 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 36 - 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Shapira (US Patent number 6,697,641) in view of Dean (US patent number 6,091,970).

Regarding **claim 36**, Shapira discloses that a radio transmission apparatus (Fig. 5 and column 2, lines 40 – 67). Shapira teaches that an antenna (Fig. 5) having first (P1 in Fig. 5) and second linear polarization antenna (P2 in Fig. 5) elements that extend perpendicular to each other (Fig. 5, 10, column 9, lines 36 – 67, and column 13, lines 21 – 49, where teaches a transmission system having two linear polarization antennas that orthogonal to each other). Shapira teaches that a phase controller (control circuit in Fig. 5) that multiplies transmission signals for one of said first linear polarization antenna element **or** said second linear polarization antenna element by a reference signal (Fig. 5, 7, 11, column 9, lines 36 – 67, and column 11, lines 60 – column 12, lines 65, where teaches a dual polarized antenna pair at a base station, with an appropriate receive channel for each, and a signal combining and control circuit, adds polarization diversity to a base station receiver, and the adaptive combining control circuit has two time

constants, and the control is applied to a dual polarization transmission antenna pair, with their appropriate transmission channels).

Shapira does not specifically disclose the limitation "first linear polarization antenna element or said second linear polarization antenna element by a reference signal to invert a polarity of the transmission signal corresponding to said reference signal". However, Dean discloses the limitation "first linear polarization antenna element or said second linear polarization antenna element by a reference signal to invert a polarity of the transmission signal corresponding to said reference signal" (column 4, lines 29 – column 5, lines 34 and Fig. 2, 3, where teaches a suitable type of antenna is a so-called dual-slant polarized antenna, comprising two sets of respectively orthogonally polarized antenna elements that are accessed via respective ports, the antennas are accessed through horizontal and vertical polarization ports, and the two polarization orientations may be inverted on each antenna corresponding to timing signal). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of the Shapira as taught by Dean. The motivation does so would be to enhance the performing of polarization antennas for efficient signal adaptability in wireless communication antenna system.

Regarding **claim 37**, Shapira teaches that first (660 in Fig. 12) and second (662 in Fig. 12) linear polarization antenna elements are positioned with longitudinal directions of said first and second linear polarization antenna elements crossing (Fig. 12, 13 and column 15, lines 24 – 52, where teaches first and second linear polarization antennas are positioned crossing each other).

Regarding **claim 38**, Shapira teaches that the first and second linear polarization antenna elements are spaced at an interval on a plane with a longitudinal relationship between said first and second linear polarization elements indicative of twisted positions (Fig. 12, 13 and column 15, lines 24 – 52, where teaches first and second linear polarization antennas are positioned spaced interval and crossing each other such that twisted position).

Regarding **claim 39,** Shapira teaches that the first and second linear polarization antenna elements are spaced at an interval with a longitudinal relationship between said first and second linear polarization elements indicative of an angle (Fig. 12, 13 and column 15, lines 24 – 52, where teaches first and second linear polarization antennas are positioned spaced interval and crossing each other with having angle).

Allowable Subject Matter

4. Claims 40 and 41 are allowed.

Claims 40 and 41 are allowable over the prior art of record because a search does not detect the combined claimed elements as set forth in the claims 40 and 41.

As recited in independent claim 40, none of the prior art of record teaches or fairly suggests that a receiver that receives a first signal transmitted in a predetermined polarization plane and a second signal transmitted in a polarization plane different from the predetermined polarization plane, and a determiner that, upon processing said first signal and said second signal, performs data determination on an as is basis with respect to data of a signal of a strong electric field strength, and with respect to data of a signal of

weak electric field strength, inverts said data of said signal of said strong electric field strength to make said determination, said signal of weak electric field strength being weaker than said signal of a strong electric field strength, and together with combination of other element as set forth in the claims 40 and 41. Therefore, claims 40 and 41 are allowable over the prior art of records.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Granholm et al. (US Patent number 6,147,648) discloses Dual Polarization Antenna Array With Very Low Cross Polarization and Low Side Lobes.

Information regarding...Patent Application Information Retrieval (PAIR) system... at 866-217-9197 (toll-free)."

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231
Or P.O. Box 1450
Alexandria VA 22313

or faxed (571) 273-8300, (for formal communications intended for entry)

Or: (703) 308-6606 (for informal or draft communications, please label "PROPOSED" or "DRAFT").

Hand-delivered responses should be brought to USPTO Headquarters, Alexandria, VA.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John J. Lee** whose telephone number is **(571) 272-7880**. He can normally be reached Monday-Thursday and alternate Fridays from 8:30am-5:00 pm. If attempts to reach the examiner are unsuccessful, the examiner's supervisor, **Nay Aung Maung**, can be reached on **(571) 272-7882**. Any inquiry of a general nature or

relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-4700.

9/27/05

TILAHUN GESESSE
PRIMARY EXAMINER

J.L
September 25, 2005

John J Lee